Microchemical Journal

devoted to the application of microtechniques in all branches of science

Editor: Al Steyermark
Editor-Elect: Peter N. Keliher

Volume 30 • 1984

Published under the auspices of the American Microchemical Society by

ACADEMIC PRESS, INC.

San Diego Orlando New York
London Toronto Montreal
Sydney Tokyo

Copyright © 1984 by Academic Press, Inc.
All rights reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (21 Congress Street, Salem, Massachusetts 01970), for copying beyond that permitted by Sections 107 or 108 of the U.S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1984 articles are as shown on the article title pages; if no fee code appears on the title page, the copy fee is the same as for current articles.

0026-265X/84 $1.50

MADE IN THE UNITED STATES OF AMERICA

CONTENTS OF VOLUME 30

NUMBER 1, AUGUST 1984

F. DE PABLOS, J. L. GÓMEZ ARIZA, AND F. PINO. Microscopical Identification of Cobalt(II) and Iron(II) by Formation of a Mixed Ligand Complex with α-Dioximes and Pyridine. 1

M. T. ZAKI, M. I. ISMAIL, AND E. N. RIZKALLA. Metal Chelates of Phosphonate-Containing Ligands. VII. Analytical Applications of 1-Hydroxyethane-1,1-diphosphonic Acid. 6

J. HERNÁNDEZ-MÉNDEZ, A. ALONSO-MATEOS, AND E. J. MARTÍN-MATEOS. Extraction of the $(C_4H_9)_4N^+$–Co(II)–SCN^- Ion-Pair in Chloroform and in Isoamyl Alcohol: Spectrophotometric Determination of Cobalt. 12

Y. S. VARMA, ISHWAR SINGH, B. S. GARG, AND R. P. SINGH. Spectrophotometric Determination of Microamounts of Mercury(II) and Sulfide Ions in Aqueous Solution. 20

I. NĚMCOVÁ, H. PEŠINOVÁ, AND V. SUK. Spectrophotometric Study of the Reaction of Bismuth with Bromopyrogallol Red in the Presence of Tensides: The Determination of Bismuth and EDTA. 27

A. G. ASUERO, D. ROSALES, AND M. M. RODRIGUEZ. Spectrophotometric Determination of Zinc in Pharmaceutical Preparations with Biacetyl Mono(2-pyridyl)-hydrazone. 33

I. NĚMCOVÁ, J. HRACHOVSKÁ, J. MIKOVÁ, AND V. SUK. Spectrophotometric Study of the Reactions of Bromopyrogallol Red with Cationogenic Tensides: Determination of Antimony. 39

M. E. ATTIA, A. B. FARAG, AND H. N. A. HASSAN. The Simultaneous Microdetermination of Carbon, Hydrogen, Arsenic, or Selenium in Organic Compounds. 47

S. A. RAHIM, D. AMIN, AND W. A. BASHIR. Titrimetric and Spectrophotometric Methods for the Determination of Cerium(IV) in Aqueous Solution. . . . 53

P. ARIAS ABRODO, D. BLANCO GOMIS, AND A. SANZ MEDEL. A Comparative Study of Different Extraction Systems for the Spectrophotometric Determination of Potassium with 18-Crown-6. 58

J. A. ORTUÑO, T. PÉREZ-RUIZ, C. SÁNCHEZ-PEDREÑO, AND P. MOLINA BUENDÍA. 1,2,4,6-Tetraphenylpyridinium Perchlorate as a Reagent for Ion-Association Complex Formation and Its Use for the Spectrophotometric Determination of Gold. 71

J. J. MCALISTER AND K. R. HIRONS. Total Elemental Analysis of Lake Sediments in Palaeoecology: An Investigation of Sample Preparation Techniques for Atomic Absorption Analysis. 79

JOHN T. STOCK. A Simple Electronic Microcoulometer. 92

HANAA H. HASSANEIN, ZAINAB SHAKER, RAGAA R. HAMED, MONA MOHAREB, AND NAWAL EL-BADRAWY. Microdetermination of Collagenase and Collagen. 97

A. GALLARDO CESPEDES, D. PEREZ BENDITO, AND M. VALCARCEL. Spectrophotometric Study of Complexes of Mercury(II) with Mono- and Dithiosemicarbazones. 105

R. IZQUIERDO-HORNILLOS, J. L. PERAL-FERNANDEZ, A. CABRERA-MARTIN, AND R. GALLEGO-ANDREU. Extraction and Spectrophotometric Determination of Mercury(II) with Xylenol Orange in the Presence of Diphenylguanidine as a Synergistic Agent. 114

B. MATKOVICS AND L. SZABO. Comparative Superoxide Dismutase Activity Studies. 125

BOOK REVIEWS

GEORGE W. C. HUNG. *Size Exclusion Chromatography (GPC)*. Edited by Theodore Provder. 130

AL STEYERMARK. *Kirk–Othmer Encyclopedia of Chemical Technology*, Vol. 13, 3rd ed., and Index to Vols. 9–12. 131

AL STEYERMARK. *Kirk–Othmer Encyclopedia of Chemical Technology*, Vol. 14, 3rd ed. 132

DONALD F. LOGSDON, JR. *Prudent Practices for Handling Hazardous Chemicals in Laboratories*. 132

DAVID B. SABINE. *Inorganic Chemistry in Biology and Medicine*. Edited by A. E. Martell. 133

NUMBER 2, OCTOBER 1984

PAUL STEVENS AND DICKSON HONG. The Role of Myeloperoxidase and Superoxide Anion in the Luminol- and Lucigenin-Dependent Chemiluminescence of Human Neutrophils 135

K. G. BLASS. Investigation of Picramic Acid and Methylguanidine Formation during the Heated Jaffe' Reaction 147

J. HERNÁNDEZ-MÉNDEZ, A. ALONSO-MATEOS, AND E. J. MARTÍN-MATEOS. Extraction of the $[(C_4H_9)_4N]_3[Fe(SCN)_6]$ Ion-Pair with Chloroform: Spectrophotometric Determination of Iron 154

B. F. ABRAMOVIĆ, F. F. GAÁL, R. I. CSERVENÁK, AND A. GY. VARGA. Semiautomatic and Automatic Catalytic Amperometric and Catalytic Constant-Current Potentiometric Titrations of Gold(III) 162

H. S. RATHORE, M. N. AKHTAR, AND S. K. SHARMA. A New Spot Test for the Detection of Traces of Citric and Tartaric Acids in Vinegar 172

B. TAMHINA AND A. GOJMERAC IVŠIĆ. Extraction and Spectrophotometric Determination of Niobium by Tetraphenylarsonium and Phosphonium Chloride from a Hydrochloric Acid Solution 178

M. ROMÁN CEBA, J. J. BERZAS NEVADO, AND A. ESPINOSA MANSILLA. Spectrophotometric and Polarographic Studies of Pyridin-2-aldehyde guanylhydrazone-Fe(II) System 186

CURTIS MCDONALD AND CARINA M. ALFARO-FRANCO. Solvent Extraction Studies of Cobalt in Aqueous Thiocyanate Solutions Using Aliquat-336 194

M. F. M. EL GHANDOUR AND A. ABD EL RAZEK. Use of Hexamminecobalt(III)–Tricarbonatocobaltate(III) as a Redox Titrant for the Potentiometric Estimation of Some Organic Compounds 201

M. E. DÍAZ GARCÍA, E. BLANCO GONZÁLEZ, AND A. SANZ-MEDEL. On the Surfactant-Sensitized Analytical Reaction of Titanium with Bromopyrogallol Red 211

I. NĚMCOVÁ, M. CHARVÁTOVÁ, AND V. SUK. A Spectrophotometric Study of the Reaction of Platinum(IV) with Chloropromazine 221

ALI Z. ABU-ZUHRI AND KAMEL ABEDUL-HADI. Sensitive Spectrophotometric Determination of La(III) with 1-(2-Pyridylazo)-2-naphthol 231

F. LAZARO, M. D. LUQUE DE CASTRO, AND M. VALCÁRCEL. Potentiometric Aspects of Mercury(II)–Thiosemicarbazonates. I. Protometric Titrations in a Water–Acetone Mixture 235

M. KOREN AND M. ŠIROKI. Microdetermination of Osmium by Oxygen-Flask Combustion of the Sample 245

BOOK REVIEWS

GEORGE W. C. HUNG. *N-Nitrosamines*. Edited by Jean-Pierre Anselme . . . 254

AL STEYERMARK. *Nucleic Acids and Proteins. The Proceedings of Symposium on Nucleic Acids and Proteins*. Edited by Shen Zhao-Wen 255
DAVID B. SABINE. *The Nobel Duel*. By Nicholas Wade 255
AL STEYERMARK. *Kirk-Othmer Encyclopedia of Chemical Technology, Vols. 20–22, 3rd ed.* 256
PETER F. LOTT. *Fast Neutron Activation Analysis-Elemental Data Base*. By John W. McKlveen 257
AL STEYERMARK. *The Condensed Chemical Dictionary, 10th ed.* 257
DONALD F. LOGSDON. JR. *Liquid Chromatography in Clinical Analysis*. Edited by P. Kabra and L. Marton 257
PETER F. LOTT. *Asbestos Sampling and Analysis*. By Gyan S. Rajhans and John L. Sullivan 258

NUMBER 3, DECEMBER 1984

H. SANKE GOWDA, A. THIMME GOWDA, AND N. M. MADE GOWDA. Spectrophotometric Determination of Microamounts of Gold(III) with Propericiazine 259
DANDINASIVARA S. MAHADEVAPPA, M. B. MADE GOWDA, K. S. RANGAPPA, AND NETKAL M. MADE GOWDA. Sodium *N*-Chlorobenzenesulfonamide as an Analytical Reagent: Determination of Amino Acids and Their Metal Complexes 266
KHANA RANI PAUL AND V. K. GUPTA. A New Spot Test for Nitro Compounds 280
A. L. J. RAO AND CHANDER SHEKHAR. Extraction Spectrophotometric Determination of Cobalt and Nickel Using Ethylthioxanthate 283
J. P. RAWAT AND K. P. SINGH MUKTAWAT. Sensitive, Selective Spectrophotometric Determination of Phenols with Periodic Acid 289
S. B. GHOLSE AND R. B. KHARAT. Rapid Extraction and Spectrophotometric Determination of Vanadium(V) with 2′-Hydroxy-4-methoxy-5′-methyl Chalkone Oxime (HMMCO) 297
M. SARWAR AND TEHSEEN AMAN. Spectrophotometric Determination of Morphine 304
SUSANTA K. SENGUPTA. A New Amphi-Indicator Based on Cationic Colorant Methyl Violet 310
K. K. TIWARI AND R. M. VERMA. Microdetermination of Certain Mercaptans and Carboxylic Acids Present in a Mixture 313
H. KHALIFA, M. A. ZAYED, AND A. ABOUD ALI. Redox Properties of Cobalt(III) Mixed Ligand Complexes. II. Redox Titration of Some Organic and Inorganic Substances Potentiometrically 319
H. KHALIFA, I. A. ISMAIL, AND M. ZAKY. Determination of Gold(III) Alone or in Some Mixtures and Alloys by Potentiometric Titration of Iodide 327
A. SANZ MEDEL, J. E. SANCHEZ URÍA, AND S. ARRIBAS JIMENO. Extraction and Spectrophotometric Determination of Trace Amounts of Niobium with Diphenylglioxal-bis-(2-hydroxybenzoylhydrazone) 334
J. L. PERAL-FERNANDEZ, R. IZQUIERDO-HORNILLOS, A. CABRERA-MARTIN, AND R. GALLEGO-ANDREU. The Influence of Water-Soluble Alcohols on the Hg(II) and Xylenol Orange Complexing Reaction 342
I. A. ISMAIL, H. KHALIFA, AND M. ZAKY. Applications Involving Oxidation with Ethanolic Iodine. Rapid Potentiometric Method for Some Reductants . . . 353
F. LAZARO, M. D. LUQUE DE CASTRO, AND M. VALCÁRCEL. Potentiometric Aspects of Mercury(II)–Thiosemicarbazonates. II. Titration by the Use of Iodide Ion-Selective and Amalgamated Gold Electrodes. Determination of Apparent Formation Constants in a Water–Acetone Mixture 358

ZBYNĚK VEČEŘA, JITKA UHDEOVÁ, AND VLASTIMIL REZL. Decomposition of Nitrogen and Dinitrogen Oxides on Copper and Copper(I) Oxide in Elemental Analysis by Reaction Gas Chromatography 369
J. J. BERZAS NEVADO, A. ESPINOSA MANSILLA, AND P. VALIENTE GONZÁLEZ. Salicylaldehyde Guanylhydrazone as an Analytical Reagent for Spectrophotometric Estimation of Iron 380
DA. MALJKOVIĆ, DU. MALJKOVIĆ, AND J. HEDŽET. Separation of Iron(III) and Gold(III) by Paper Chromatography Using Mixed Solvents Containing Diisopropyl Ether 389
M. BALCERZAK AND Z. MARCZENKO. Study of the System Os(IV)–Chloride–Brilliant Green: Extraction–Spectrophotometric Determination of Osmium . . 397
J. BAREK, A. BERKA, AND V. BOREK. The Use of Redox Reactions in the Analysis of Dyes and Dye Intermediates. XIV. Direct Current Polarography of 4,4′-Disubstituted Azobenzenes in Acetonitrile 404
TERESA KOWALSKA. Determination of "Solvent" Concentration in "Chromatographic Solutions" on the Cellulose Sorbents 418
S. COSTANTINI, R. GIORDANO, AND I. VERNILLO. Application of ZrC-Coated Tubes to the Determination of Aluminum in Serum by Graphite Furnace Atomic Absorption Spectroscopy 425
R. GIORDANO, S. COSTANTINI, I. VERNILLO, B. CASETTA, AND F. ALDRIGHETTI. Comparative Study for Aluminum Determination in Bone by Atomic Absorption Techniques and Inductively Coupled Plasma Atomic Emission Spectroscopy 435
BOOK REVIEWS
AL STEYERMARK. *McGraw-Hill Encyclopedia of Chemistry* 448
AL STEYERMARK. *Kirk-Othmer Encyclopedia of Chemical Technology*. Vols. 15 and 16, 3rd ed. 448
AL STEYERMARK. *Wilson and Wilson's Comprehensive Analytical Chemistry*. Edited by G. Svehla 449
GEORGE W. C. HUNG. *Stereological Methods, Vol. 2: Theoretical Foundations*. By Ewald R. Weibel 449
GEORGE W. C. HUNG. *Fixation for Electron Microscopy*. By M. A. Hayat 451
GEORGE W. C. HUNG. *Physical Methods in Modern Chemical Analysis*, Vol. 3. Edited by Theodore Kuwana 452
EMANUEL P. MANCHE. *Aquametry—A Treatise on Methods for the Determination of Water. Part III. The Karl Fischer Reagent*. By J. Mitchell, Jr., and D. M. Smith 454
ARUN P. GORKHALY. *Mikrochimica Acta, An International Journal for Physical and Chemical Methods of Analysis, Supplementum 9* 455
AUTHOR INDEX FOR VOLUME 30 456